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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,237	03/13/2001	Richard W. Citta	7174D	9159

7590 10/18/2004  
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Zenith Electronics Corporation  
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EXAMINER

BAYARD, EMMANUEL

ART UNIT	PAPER NUMBER
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2631

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/804,237	<b>Applicant(s)</b> CITTA ET AL.	
	<b>Examiner</b> Emmanuel Bayard	<b>Art Unit</b> 2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-42 is/are allowed.
- 6) ☒ Claim(s) 1,8-12,21 and 22 is/are rejected.
- 7) ☒ Claim(s) 2-7,13-20 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

#### *Specification*

1. The abstract of the disclosure is objected to because it is too short. Correction is required. See MPEP § 608.01(b).

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 8-12, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over anticipated by Yu et al U.S. patent No 6,307,901 B1.

As per claim 1, Yu et al teaches a method providing enhanced slice prediction comprising: receiving input containing first and second data (see fig.5 elements Xkp1, Xkp2) and wherein the first and second data have different bit rates (see col.7, lines 32-40) and are defined by the same n level constellation; decoding only the second data with a decoder (see fig.5 element DEC2); producing an output in response to the input and the decoder (see fig.5 element puncturing and mux and col.6, lines 40-44) , wherein the output is confined least one but fewer than  $n/2$  the constellation levels, and wherein and, providing output as the slice (see col.4, lines 62-64 and col.6, line 35-40).

However Yu et al does teach providing the output as the enhanced slice prediction.

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Yu et al teaches an improved slicer decoder (see col.2, lines 10-11 and col.5, lines 41-45 and col.6, lines 35-39) which has the capability to perform the same function as the claimed (enhanced slice prediction). Therefore it would have been obvious to one of ordinary skill in the art to modify the teaching Yu to perform enhanced slice prediction as to apply correction signal to each input signal in order to accurately minimize the intersymbol interference.

As per claim 8, Yu et al would include decoding the input when the second data is not available so as to produce the output and decoding the second data when the second data is available so as to produce the output as to accurately recover the original signal free of noise and interference.

As per claim 9, Yu et al would include delaying the decoding of the input based least in part upon a processing time of the decoder as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference.

As per claim 10, Yu et al would include wherein the providing of the output as the enhanced prediction comprises providing only one state as the enhanced slice prediction as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference

As per claim 11, Yu et al would include comprising selecting between decoding the input and the second data response a received map as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference.

As per claim 12, Yu et al would include data comprises eight level non-RVSB symbols, and wherein second data comprises eight level RVSB symbols as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference.

As per claim 21, Yu et al does a feedback equalizer (see fig.5 element 100). Furthermore implementing such equalizer as the enhanced slice prediction would have been obvious to one skilled in the art symbols as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference.

As per claim 22, Yu et al does a feedback equalizer (see fig.5 element 100). Furthermore implementing such equalizer as the enhanced slice prediction to phase tracker would have been obvious to one skilled in the art symbols as to apply correction signal to each input signal in order to accurately minimize the inter-symbol interference.

***Allowable Subject Matter***

3. Claims 2-7, 13-20 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. Claims 24-42 are allowed over the prior art of record.
5. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to anticipate or render obvious the following recited features: an enhanced slice predictor that chooses at least one but fewer than the  $n/2$  of the  $n/2$  possible decoding states based upon an output of the decoder and that provides the chosen state or states as the enhanced slice prediction as recited in claims 2-7 and 24. Wherein providing of the output as the enhanced prediction comprises providing the enhanced slice prediction based upon a known training signal when a transmitted training signal is contained received signal as recited in claim 13. An enhanced slice predictor that provides prediction output based upon the first data

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when the second data available and based upon the decoded second data when the second data available as recited in claims 14-20 and 33-42.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Pukkila et al Pub No 2001/0004390 A1 teaches a method and arrangement for iteratively improving a channel.

Nfedov Pub No 2003/0118122 A1 teaches a method and apparatus for channel coding.

Herzberg U.S. Patent No 6,034,996 teaches a system and method for concatenating Reed-Solomon.

Brink U.S. patent No 6,353,911 B1 teaches an iterative de-mapping.

Wang U.S. patent No 6,044,116 teaches an error floor mitigated and repetitive turbo coding communication system.

Krieger et al U.S. patent No 6,606,724 B1 teaches a method and apparatus for decoding of a serially concatenated block.

Hani U.S. patent No 6,697,985 B1 teaches a predictive forward error.

Haller et al U.S. patent No 6,182,261 B1 teaches an efficient iterative decoding.

Dinc et al U.S. patent No 6,393,076 B1 teaches a decoding of Turbo codes.

Zhang et al U.S. Patent No 6,233,709 B1 teaches a dynamic iterative decoding for balancing quality.

Doetsch et al U.S. patent No 6,574,291 B1 teaches a Turbo-code decoder and turbo code.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016.

The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard  
Primary Examiner  
Art Unit 2631

9/18/04

**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**

